

ABSTRACT

Ozone gas having a high ozone concentration is generated by a solid electrolyte electrolytic process. An ozone solution is prepared by injecting the ozone gas into an acidic solution of pH 6 or below. The ozone solution heated at a temperature in the range of 50° to 90° C is supplied to a contaminated object to oxidize and dissolve a chromium oxide film by an oxidizing dissolving process. The ozone solution used in the oxidizing dissolving process is irradiated with ultraviolet rays to decompose ozone contained in the ozone solution, the ozone solution is passed through an ion-exchange resin to remove ions contained in the ozone solution. An oxalic acid solution is supplied to the contaminated object to dissolve an iron oxide film by a reductive dissolving process. Oxalic acid remaining in the oxalic acid solution after the reductive dissolving process is decomposed by injecting ozone into the oxalic acid solution and irradiating the oxalic acid solution with ultraviolet rays, and ions contained in the oxalic acid solution is removed by an ion-exchange resin.